

C. DUKES SCOTT
EXECUTIVE DIRECTOR

P.O. Box 11263
Columbia, S.C. 29211



Phone: (803) 737-0800
Fax: (803) 737-0801

DAN E. ARNETT
CHIEF OF STAFF

173814

May 2, 2005

Mr. Charles L.A. Terreni
Chief Clerk/Administrator
South Carolina Public Service Commission
101 Executive Center Dr., Suite 100
Columbia, SC 29210

2005 MAY -2 PM 4:50
SC PUBLIC SERVICE COMMISSION
RECEIVED

Re: Application of Carolina Water Service, Inc. for Adjustment of Rates and Charges and Modification of Certain Terms and Conditions for the Provision of Water and Sewer Service
PSC Docket No. 2004-357-WS

Dear Charles:

Enclosed for filing please find the original and twenty-six (26) copies of the Surrebuttal Testimony and Exhibits of Dr. Ben Johnson in the above referenced matter. Please date stamp the extra copies enclosed and return them to me via our courier.

Also, we have served same on Counsel for the Applicant and enclose a Certificate of Service to that effect.

Please let me know if you have any questions.

Sincerely,

C. Lessie Hammonds

CLH/cc

Enclosures

cc: John M. S. Hoefer, Esquire

BEFORE
THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

DOCKET NO. 2004-357-WS

IN RE: Application of CAROLINA)
WATER SERVICE, INC. for)
Adjustment of Rates and Charges)
And Modification of Certain Terms)
And Conditions for the Provision)
Of Water and Sewer Service)
_____)

CERTIFICATE OF SERVICE

This is to certify that I, Cindy Clary, an employee with the Office of Regulatory Staff, have this date served one (1) copy each of the **Surrebuttal Testimony and Exhibits Dr. Ben Johnson** in the above-referenced matter to the person(s) named below by causing said copy to be deposited in the United States Postal Service, first class postage prepaid and affixed thereto, and addressed as shown below:

John M.S. Hoefer, Esquire
Willoughby & Hoefer, P.A.
Post Office Box 8416
Columbia, South Carolina 29202


Cindy Clary

May 2, 2005
Columbia, South Carolina

REC-370
2005 MAY -2 PM 4:51
SC PUBLIC SERVICE
COMMISSION

THE OFFICE OF REGULATORY STAFF

SURREBUTTAL TESTIMONY AND EXHIBITS

OF

DR. BEN JOHNSON

2005 MAY -2 PM 4:51
SC PUBLIC SERVICE
COMMISSION



DOCKET NO. 2004-357-W/S
APPLICATION OF
CAROLINA WATER SERVICE, INC.
FOR ADJUSTMENT OF
RATES AND CHARGES

SURREBUTTAL TESTIMONY
OF BEN JOHNSON, PH.D.
On Behalf of
THE STATE OF SOUTH CAROLINA
OFFICE OF REGULATORY STAFF
Before the
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

Docket No. 2004-357-W/S

Introduction

Q. Would you please state your name and address?

A. Ben Johnson, 2252 Killearn Center Blvd, Tallahassee, Florida.

Q. Are you the same Ben Johnson who earlier filed direct testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of you surrebuttal testimony?

A. I will briefly respond to certain issues raised by Company witness Ahern, in her rebuttal testimony filed on April 27, 2005 in this proceeding. Specifically, I will respond to her

1 primary criticism of my cost of capital analysis; i.e., that I supposedly relied exclusively
2 on historical data, without any consideration of future capital market expectations. I will
3 also briefly discuss Mrs. Ahern's claims that my approach is inconsistent with the
4 Efficient Market Theory, and her criticism of my risk adjustment. Due to time constraints
5 I have not attempted to exhaustively reply to her rebuttal testimony; my failure to respond
6 to a specific portion of her testimony should not be interpreted as agreement with that
7 portion of her testimony.

8
9 **Q. Can you begin by summarizing Mrs. Ahern's claim that you relied entirely on**
10 **historical market data?**

11 A. Mrs. Ahern concludes:

12
13 Dr. Johnson's recommended ranges of common equity are erroneously and
14 exclusively based upon historical data, which is inconsistent with the
15 prospective nature of ratemaking and the concept of the cost of capital,
16 including the cost of common equity. [Ahern Rebuttal, p. 12]
17

18 Mrs. Ahern further concludes that such reliance on historical data is inconsistent with the
19 Efficient Market Hypothesis (EMH), and inconsistent with "the cost of common equity
20 analysis adopted in Docket No. 2000-0207-W/W". [Id. p. 2]
21

22 **Q. Is it true that you relied exclusively on historical data in your cost of capital**
23 **analysis?**

24 A. No. To the contrary, I agree with Mrs. Ahern that cost of capital is a forward looking
25 concept. Hence, in developing my recommendations regarding the company's cost of

1 capital, I did not rely exclusively on recent historical data, nor did I apply a mechanical
2 approach to interpreting the available historical data. Rather, I used judgment in
3 interpreting the historical data, taking into consideration fluctuations in that data, trends
4 in that data, and the likely future course of each specific data set. Similarly, in preparing
5 my cost of equity estimates using the market approach, I carefully considered investors'
6 expectations about future market conditions, as well as future growth in earnings,
7 dividends and book value.

8
9 I believe that in performing a market analysis, especially in estimating the
10 growth component in a DCF analysis, the status of investor expectations or
11 psychology should be assessed very carefully. In my opinion, a strictly
12 mechanical process should not be used, because this considers neither the
13 available evidence regarding investors' moods and expectations nor subtle
14 nuances such as the sustainability of particular growth rates (whether
15 achieved or projected). [Johnson Direct, p. 18]
16
17
18

19 As I explained on pages 22 and 23 of my direct testimony, the dividend yield used in my
20 DCF analysis was based, in part, on investors' current expectations about long term future
21 growth. Clearly, I did not simply adopt the historic rate of growth, as evidenced by the
22 fact that the percentage growth rate used in my DCF analysis was somewhat higher than
23 the recent historical growth in dividends. I justified this departure from the historic data -
24 which had the effect of increasing my estimate of the Company's cost of equity – due in
25 part to investors' future expectations. [Id., p. 25] I further explained:
26

27 In general, it is fair to say that the growth range I selected for use in my
28 DCF analysis is consistent with, but somewhat higher than, the average

1 historic growth rates experienced by the 10 water companies during 1995-
2 2003. While this may seem anomalous, it is investor *expectations* about
3 the future, not past results, that are most relevant in developing a DCF
4 analysis. In my opinion, a 5.5% to 6.5% growth rate fairly reflects the
5 average investor's expectations for long term dividend growth for these 10
6 water companies, despite the fact that this range is somewhat higher than
7 much of the recent historic growth data. [Id., p. 26]
8
9

10 Simply stated, the bulk of Mrs. Ahern's rebuttal testimony is premised upon an incorrect
11 understanding of the analytical approach I used. I did not rely strictly on historical growth
12 patterns, nor did I ignore investor expectations about the future. If one were to adjust my
13 recommended cost of equity upward to account for future growth expectations, one would
14 be engaged in double counting, and the end result would be a number that exceeds the
15 Company's actual cost of capital.
16

17 **Q. Mrs. Ahern seems to be suggesting that you should have relied upon a combination**
18 **of past and future market data in your analysis. Is there future data available that**
19 **you failed to consider?**

20 A. No. Obviously, no future data exists. For instance, the dividends that will be paid during
21 2006 will not be available for empirical analysis until sometime after December 2006.
22 Similarly, while various estimates of near-term future earnings are available currently,
23 those estimates do not represent data showing the future. At most, this data shows what
24 certain stockbrokers and other analysts are anticipating will occur in the future. In this
25 regard, it is important to realize that the DCF method is based upon long term growth
26 expectations – something that cannot be gleaned from the short term earnings estimates
27 and other projections published by analysts.

1 **Q. What “future” information does Mrs. Ahern rely upon?**

2 A. Mrs. Ahern relies upon projected returns published by Value Line Investment Survey.
3 [See, Ahern Rebuttal, p. 8] This cannot fairly be characterized as “future data.” Rather, it
4 represents Value Line’s projections of what it anticipates will occur in the next few years.
5 Even if Value Line’s analysts were infallible (they are not), this wouldn’t answer the
6 question of what growth the average investor, or the market as a whole, expects over the
7 long term. Not all investors agree with Value Line, or even pay much attention to Value
8 Line’s projections. Furthermore, as Mrs. Ahern concedes,

9
10 Forecasts by analysts, including Value Line, are typically limited to five
11 years. [Ahern Direct, p. 30]

12
13 Yet, the theory that underlies the DCF method essentially requires consideration of
14 growth for at least 30 years into the future – not just the next few years.

15
16 **Q. In addition to criticizing you for only looking at historical data, Mrs. Ahern claims**
17 **that your historical data is “out of date”. [Ahern Rebuttal. p. 8] Can you respond?**

18 A. Yes. Mrs. Ahern appears to be referring to the historical data I displayed in the Schedules
19 accompanying my testimony, particularly the data used in developing my DCF analysis.
20 As of the time I developed my testimony, these annual data series had not been published
21 beyond 2003. Interestingly, the historical growth data Mrs. Ahern used for her proxy
22 group also did not go beyond 2003. [See, e.g., Schedule PMA 9] Given the approach I
23 used, in which historical data is only one element of my analytical process, I was not
24 concerned about only displaying data through the last full calendar year for which

1 published data was readily available (2003).
2

3 **Q. Has any additional historical data has become available since you filed your direct**
4 **testimony?**

5 A. Yes. The Standard and Poor's Quantitative Stock Reports I used in preparing my direct
6 testimony were updated on April 23, 2005. These updated reports include some (but not
7 all) of the relevant data for calendar year 2004. I used these updated reports to prepare
8 Schedules 1 through 4 attached to this surrebuttal testimony. Schedule 1 shows historical
9 dividend yields for the 10 water companies used in my analysis. This schedule is similar
10 to schedule 4, attached to my direct testimony. Schedules 2 through 4 show growth in
11 dividends, earnings, and book value, respectively. These schedules are similar to
12 schedules 4 through 7, attached to my direct testimony.
13

14 **Q. Does this revised data change your opinion regarding the Company's cost of**
15 **capital?**

16 A. No. As can be seen on schedules 1 through 4, the addition of one more year of data does
17 not significantly alter the growth prospects for the 10 Water Utilities, nor does it warrant
18 any modification of my conclusions or recommendations.
19

20 **Q. Mrs. Ahern also claims that your cost of capital analysis is not consistent with the**
21 **EMH. What is your response?**

22 A. Mrs. Ahern's conclusion that my analysis is inconsistent with the EMH results from her
23 erroneous impression that I failed to consider future market conditions when determining

1 the Company's cost of equity. She states:

2
3 [I]n an attempt to emulate investor behavior, which all rate
4 of return analysts do, including both Dr. Johnson and
5 myself, it is incumbent upon the analyst to evaluate current
6 and prospective market data. Therefore, Dr. Johnson's
7 exclusive reliance upon historical data in his application of
8 both the CEM and the DCF is incorrect.
9
10

11 As I explained above, Mrs. Ahern is mistaken in her belief that I did not consider
12 prospective market conditions. I did consider investors' expectations about the future,
13 including future market conditions (e.g. the likelihood of bullish versus bearish market
14 conditions).

15 I would also note that the EMH is a hypothesis. While hypotheses can be useful,
16 the EMH does not rise to the status of a comprehensive theory – much less a proven fact.
17 To the contrary, while the EMH is widely relied upon, it remains quite controversial.
18 Among other reasons, there is ample data suggesting that if markets are efficient over the
19 long term, they are not efficient over the short term, because of distortions introduced by
20 market psychology, and the widespread reliance on technical analysis, which can create
21 circular reasoning phenomena. For example, during the bull market of the 1990's the
22 technology-intensive NASDAQ index followed a strong, accelerating upward trend line.
23 Enormous amounts of money were earned by investors who bet on a continuation of this
24 trend line, despite the fact that it did not appear to be sustainable over the long term.
25 While contrarian analysts had long predicted that these trends are not sustainable, the
26 most profitable strategy was to follow the crowd by assuming that stock prices would

1 continue to rapidly escalate.

2 A sudden break in the NASDAQ trend line occurred in early 2000. This sudden
3 change in the NASDAQ trend line was not predicted by the market; it was not
4 precipitated by a terrorist attack or other major news item and it was not a result of any
5 fundamental change in the underlying prospects for long term future growth in this sector
6 of the economy. To the contrary, investor expectations and attitudes about the technology
7 sector largely changed after the trend line broke, not before the bubble burst.

8 My purpose in reminding the Commission of this recent lesson in market
9 psychology is not to dispute the relevance or usefulness of the Efficient Markets
10 Hypothesis. Rather, it is to point out the importance of considering long term historical
11 data – rather than relying exclusively on the most recent five years of data, as Mrs. Ahern
12 has frequently done. As well, this example underscores the dangers in placing too much
13 reliance on short term growth trends, published earnings estimates, and other short-term
14 oriented data, particularly where there is evidence that the short term trends are not
15 sustainable over the long term. Properly applied, the DCF method focuses on sustainable
16 long term future growth – not short term growth, which can often exceed a sustainable
17 pace.

18
19 **Q. What about Mrs. Ahern's claim that your analysis is inconsistent with the**
20 **Commission's decision in the Company's last rate case?**

21 A. First, Mrs. Ahern claims my approach is not consistent with the Commission's prior
22 decision, because she thinks I failed to consider future market conditions. [Id., pp. 5-6].
23 Again, this conclusion is based upon an erroneous determination that I ignored investor

1 expectations concerning the future. As well, I would note that in the referenced order the
2 Commission does not *require* any particular approach to the consideration of future
3 market expectations.

4 Second, Mrs. Ahern claims my approach is not consistent with the Commission's
5 prior decision, because I did not perform a risk premium or CAPM analysis. [Id.] Again,
6 however, the Commission did not require any particular approach or analytical process.
7 In that particular case, the Commission found the testimony of one particular witness
8 most persuasive, and that witness performed a risk premium and CAPM analysis. Mrs.
9 Ahern also offered a recommendation which was based, in part, upon a risk premium or
10 CAPM analysis, and yet her recommendations, and those of other cost of capital
11 witnesses who used the risk premium and CAPM method, were rejected by the
12 Commission. Since the Commission seemed to be focusing more on the credibility of the
13 specific witness and the reliability of the particular analysis, rather than the specific
14 methodology employed, and since the Commission did not indicate that any particular
15 analytical approach was mandatory, I chose to rely upon two methods which I have
16 successfully used in many other regulatory proceedings during the past 25 years.

17
18 **Q. Does this conclude your surrebuttal testimony, which was prefiled on May 2, 2005?**

19 **A. Yes.**

SURREBUTTAL EXHIBITS

OF

DR. BEN JOHNSON

**DOCKET NO. 2004-357-W/S
APPLICATION OF
CAROLINA WATER SERVICE, INC.
FOR ADJUSTMENT OF
RATES AND CHARGES**

Dividend Yield
10 Water Companies

Year/Period	Artesian	American States	CWS	Middlesex Water	California Water	Pennichuck
1995	NA	6.5%	6.6%	6.4%	6.3%	NA
1996	5.8%	5.7%	6.5%	6.3%	5.5%	NA
1997	5.2%	5.4%	5.6%	5.8%	4.4%	NA
1998	4.1%	5.0%	4.8%	5.2%	3.9%	4.1%
1999	4.0%	4.1%	4.2%	3.9%	4.0%	3.3%
2000	4.2%	4.1%	4.0%	4.1%	4.2%	3.7%
2001	4.1%	3.8%	3.1%	3.7%	4.4%	3.3%
2002	3.9%	3.5%	3.1%	3.7%	4.7%	2.9%
2003	3.2%	3.5%	3.1%	3.5%	4.1%	3.0%
2004	3.1%	3.7%	3.1%	3.4%	3.5%	3.2%
<i>5-year moving averages</i>						
1997-01	4.3%	4.5%	4.3%	4.5%	4.2%	NA
1998-02	4.1%	4.1%	3.8%	4.1%	4.2%	3.4%
1999-03	3.9%	3.8%	3.5%	3.8%	4.3%	3.2%
2000-04	3.7%	3.7%	3.3%	3.7%	4.2%	3.2%
<i>3-year moving averages</i>						
1999-01	4.1%	4.0%	3.8%	3.9%	4.2%	3.4%
2000-02	4.1%	3.8%	3.4%	3.9%	4.4%	3.3%
2001-03	3.7%	3.6%	3.1%	3.7%	4.4%	3.1%
2002-04	3.4%	3.6%	3.1%	3.6%	4.1%	3.0%

Dividend Yield

10 Water Companies

Year/Period	SJW	Southwest	Aqua	York	10 Company Average
1995	6.3%	4.3%	5.8%	NA	6.0%
1996	5.5%	3.0%	4.7%	NA	5.4%
1997	4.3%	2.5%	3.7%	NA	4.6%
1998	3.9%	2.1%	2.7%	NA	4.0%
1999	2.7%	1.6%	2.8%	NA	3.4%
2000	2.3%	1.9%	3.0%	5.7%	3.7%
2001	2.9%	1.7%	1.7%	4.2%	3.3%
2002	3.3%	1.5%	2.6%	3.2%	3.3%
2003	3.5%	1.7%	2.4%	3.2%	3.1%
2004	3.7%	1.5%	2.3%	3.1%	3.1%
<i>5-year moving averages</i>					
1997-01	3.2%	2.0%	2.8%	NA	3.7%
1998-02	3.0%	1.8%	2.6%	NA	3.5%
1999-03	2.9%	1.7%	2.5%	NA	3.3%
2000-04	3.1%	1.6%	2.4%	3.9%	3.3%
<i>3-year moving averages</i>					
1999-01	2.6%	1.7%	2.5%	NA	3.4%
2000-02	2.8%	1.7%	2.5%	4.4%	3.4%
2001-03	3.3%	1.6%	2.3%	3.5%	3.2%
2002-04	3.5%	1.6%	2.4%	3.2%	3.2%

Dividend Growth*10 Water Companies*

Year/Period	Artesian	American States	CWS	Middlesex Water	California Water	Pennichuck
1995	\$ 0.42	\$ 0.80	\$ 0.75	\$ 0.54	\$ 1.02	\$ 0.46
1996	0.60	0.82	0.76	0.55	1.04	0.52
1997	0.61	0.83	0.77	0.56	1.05	0.53
1998	0.65	0.84	0.77	0.58	1.07	0.59
1999	0.71	0.85	0.79	0.59	1.09	0.69
2000	0.73	0.86	0.80	0.61	1.10	0.73
2001	0.74	0.87	0.80	0.62	1.12	0.76
2002	0.77	0.87	0.81	0.63	1.12	0.81
2003	0.80	0.88	0.83	0.65	1.12	0.84
2004	0.83	0.89	0.84	0.66	1.13	
<i>Annualized Growth Rates</i>						
1995-01	9.9%	1.4%	1.1%	2.3%	1.6%	8.7%
1996-02	4.2%	1.0%	1.1%	2.3%	1.2%	7.7%
1997-03	4.6%	1.0%	1.3%	2.5%	1.1%	8.0%
1998-04	4.2%	1.0%	1.5%	2.2%	0.9%	6.5%
1997-01	4.9%	1.2%	1.0%	2.6%	1.6%	9.4%
1998-02	4.3%	0.9%	1.3%	2.1%	1.1%	8.2%
1999-03	3.0%	0.9%	1.2%	2.5%	0.7%	5.0%
2000-04	3.3%	0.9%	1.2%	2.0%	0.7%	4.2%
1999-01	2.1%	1.2%	0.6%	2.5%	1.4%	4.9%
2000-02	2.7%	0.6%	0.6%	1.6%	0.9%	5.3%
2001-03	4.0%	0.6%	1.9%	2.4%	0.0%	5.1%
2002-04	3.8%	1.1%	1.8%	2.4%	0.4%	3.0%

Source: Standard & Poor's, Quantitative Stock Reports

Dividend Growth*10 Water Companies*

Year/Period	SJW	Southwest	Aqua	York	10 Company Average
1995	\$ 0.72	\$ 0.08	\$ 0.29	\$ 0.45	\$ 0.55
1996	0.74	0.09	0.30	0.45	0.59
1997	0.76	0.10	0.32	0.46	0.60
1998	0.78	0.10	0.34	0.47	0.62
1999	0.80	0.11	0.36	0.47	0.65
2000	0.82	0.13	0.37	0.49	0.66
2001	0.86	0.15	0.28	0.50	0.67
2002	0.92	0.16	0.43	0.52	0.70
2003	0.97	0.17	0.46	0.55	0.73
2004	1.27	0.19	0.49	0.59	0.78

Annualized Growth Rates

1995-01	3.0%	11.0%	-0.6%	1.8%	4.0%
1996-02	3.7%	10.1%	6.2%	2.4%	4.0%
1997-03	4.2%	9.2%	6.2%	3.0%	4.1%
1998-04	8.5%	11.3%	6.3%	3.9%	4.6%
1997-01	3.1%	10.7%	-3.3%	2.1%	3.3%
1998-02	4.2%	12.5%	6.0%	2.6%	4.3%
1999-03	4.9%	11.5%	6.3%	4.0%	4.0%
2000-04	11.6%	10.0%	7.3%	4.8%	4.6%
1999-01	3.7%	16.8%	-11.8%	3.1%	2.5%
2000-02	5.9%	10.9%	7.8%	3.0%	3.9%
2001-03	6.2%	6.5%	28.2%	4.9%	6.0%
2002-04	17.5%	9.0%	6.7%	6.5%	5.2%

Earnings Growth*10 Water Companies*

Year/Period	Artesian	American States	CWS	Middlesex Water	California Water	Pennichuck
1995	\$ 0.71	\$ 1.03	\$ 0.96	\$ 0.68	\$ 1.16	\$ 0.76
1996	0.71	1.13	0.97	0.60	1.50	0.84
1997	0.71	1.04	1.00	0.67	1.83	0.86
1998	0.97	1.08	1.02	0.71	1.45	1.19
1999	0.97	1.19	1.03	0.76	1.53	1.12
2000	0.78	1.27	1.09	0.51	1.31	1.55
2001	1.05	1.33	1.10	0.66	0.97	1.50
2002	1.14	1.34	1.12	0.73	1.25	0.97
2003	0.96	0.78	1.15	0.61	1.21	0.52
2004	1.08	1.18	1.16	0.73	1.46	0.76
<i>Annualized Growth Rates</i>						
1995-01	6.7%	4.4%	2.3%	-0.5%	-2.9%	12.0%
1996-02	8.2%	2.9%	2.4%	3.3%	-3.0%	2.4%
1997-03	5.2%	-4.7%	2.4%	-1.6%	-6.7%	-8.0%
1998-04	1.8%	1.5%	2.2%	0.5%	0.1%	-7.2%
1997-01	10.3%	6.3%	2.4%	-0.4%	-14.7%	14.9%
1998-02	4.1%	5.5%	2.4%	0.7%	-3.6%	-5.0%
1999-03	-0.3%	-10.0%	2.8%	-5.3%	-5.7%	-17.5%
2000-04	8.5%	-1.8%	1.6%	9.4%	2.7%	-16.3%
1999-01	4.0%	5.7%	3.3%	-6.8%	-20.4%	15.7%
2000-02	20.9%	2.7%	1.4%	19.6%	-2.3%	-20.9%
2001-03	-4.4%	-23.4%	2.2%	-3.9%	11.7%	-41.1%
2002-04	-2.7%	-6.2%	1.8%	0.0%	8.1%	-11.5%

Source: Standard & Poor's, Quantitative Stock Reports

Earnings Growth*10 Water Companies*

Year/Period	SJW	Southwest	Aqua	York	10 Company Average
1995	\$ 1.18	\$ 0.12	\$ 0.38	\$ 0.46	\$ 0.74
1996	1.92	0.16	0.40	0.52	0.88
1997	1.60	0.21	0.45	0.54	0.89
1998	1.68	0.27	0.53	0.53	0.94
1999	1.73	0.45	0.45	0.52	0.98
2000	1.17	0.40	0.65	0.62	0.94
2001	1.53	0.44	0.70	0.65	0.99
2002	1.56	0.41	0.78	0.60	0.99
2003	2.04	0.47	0.79	0.70	0.92
2004	2.15	0.24	0.85	0.80	1.04

Annualized Growth Rates

1995-01	4.4%	24.2%	10.7%	5.9%	6.7%
1996-02	-3.4%	17.0%	11.8%	2.4%	4.4%
1997-03	4.1%	14.4%	9.8%	4.4%	1.9%
1998-04	4.2%	-1.9%	8.2%	7.1%	1.6%
1997-01	-1.1%	20.3%	11.7%	4.7%	5.5%
1998-02	-1.8%	11.0%	10.1%	3.1%	2.7%
1999-03	4.2%	1.1%	15.1%	7.7%	-0.8%
2000-04	16.4%	-12.0%	6.9%	6.6%	2.2%
1999-01	-6.0%	-1.1%	24.7%	11.8%	3.1%
2000-02	15.5%	1.2%	9.5%	-1.6%	4.6%
2001-03	15.5%	3.4%	6.2%	3.8%	-3.0%
2002-04	17.4%	-23.5%	4.4%	15.5%	0.3%

Book Value Growth*10 Water Companies*

Year/Period	Artesian	American States	CWS	Middlesex Water	California Water	Pennichuck
1995	\$ 9.90	\$ 12.69	\$ 9.73	\$ 6.51	\$ 14.53	\$ 8.52
1996	9.72	13.13	10.00	5.52	15.32	8.86
1997	9.86	13.36	10.28	6.89	16.21	9.15
1998	10.23	14.20	8.51	7.56	16.67	10.88
1999	10.67	14.21	11.15	7.96	17.49	11.27
2000	19.28	14.89	11.65	7.00	16.77	18.68
2001	11.17	15.62	12.78	8.22	17.28	12.81
2002	20.67	17.19	9.97	8.51	17.78	21.20
2003	21.29	18.20	14.79	9.05	19.61	21.73
2004	NA	19.37	15.33	9.56	15.66	NA
<i>Annualized Growth Rates</i>						
1995-01	2.0%	3.5%	4.6%	4.0%	2.9%	7.0%
1996-02	13.4%	4.6%	-0.1%	7.5%	2.5%	15.7%
1997-03	13.7%	5.3%	6.3%	4.6%	3.2%	15.5%
1998-04		5.3%	10.3%	4.0%	-1.0%	
1997-01	3.2%	4.0%	5.6%	4.5%	1.6%	8.8%
1998-02	19.2%	4.9%	4.0%	3.0%	1.6%	18.1%
1999-03	18.9%	6.4%	7.3%	3.3%	2.9%	17.8%
2000-04		6.8%	7.1%	8.1%	-1.7%	
1999-01	2.3%	4.8%	7.1%	1.6%	-0.6%	6.6%
2000-02	3.5%	7.4%	-7.5%	10.3%	3.0%	6.5%
2001-03	38.1%	7.9%	7.6%	4.9%	6.5%	30.2%
2002-04		6.2%	24.0%	6.0%	-6.2%	

Source: Standard & Poor's, Quantitative Stock Reports

Book Value Growth*10 Water Companies*

Year/Period	SJW	Southwest	Aqua	York	10 Company Average
1995	\$ 10.93	\$ 4.03	\$ 3.77	\$ 4.27	\$ 8.49
1996	12.39	4.34	4.01	4.83	8.81
1997	13.82	4.96	4.23	4.97	9.37
1998	14.85	5.43	4.76	5.10	9.82
1999	15.54	5.76	5.95	5.22	10.52
2000	NA	7.41	6.20	5.39	11.92
2001	15.76	4.03	7.06	11.27	11.60
2002	16.80	5.98	3.93	7.71	12.97
2003	17.83	3.62	9.48	8.07	14.37
2004	NA	4.36	10.55	NA	NA

Annualized Growth Rates

1995-01	6.3%	0.0%	11.0%	17.6%	5.9%
1996-02	5.2%	5.5%	-0.3%	8.1%	6.2%
1997-03	4.3%	-5.1%	14.4%	8.4%	7.1%
1998-04		-3.6%	14.2%		NA
1997-01	3.3%	-5.1%	13.7%	22.7%	6.2%
1998-02	3.1%	2.4%	-4.7%	10.9%	6.3%
1999-03	3.5%	-11.0%	12.3%	11.5%	7.3%
2000-04		-12.4%	14.2%		NA
1999-01	0.7%	-16.4%	8.9%	46.9%	6.2%
2000-02	NA	-10.2%	-20.4%	19.6%	1.4%
2001-03	6.4%	-5.2%	15.9%	-15.4%	9.7%
2002-04		-14.6%	63.8%		NA